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MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : MILITARY THOUGHT: "Some Questions in the Further
Development and Improvement of the Ground Troops",
by Colonel-General of the Tank Troops
P. Poluboyarov

1. Enclosed is a verbatim translation of an article which
appeared in the TOP SECRET Special Collection of Articles of the
Journal "Military Thought" ("Voyennaya Mysl") published by the
Ministry of Defense, USSR, and distributed down to the level of
Army Commander.

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Richard Helms

Richard Helms
Deputy Director (Plans)

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The table of contents of the 1961 Third Issue is also included. This Issue was sent to press on 10 July 1961.

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SPECIAL COLLECTION OF ARTICLES OF THE JOURNAL

MILITARY THOUGHT

THIRD ISSUE

1961

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Address

Moscow, V-100 (?), ul. Kropotkina 19; Telephone K 0-13-00, ext. 53-66
 Technical Editor R. L. Solomonik Proofreader T.G. Likhacheva

Some Questions in the Further DevelopmentandImprovement of the Ground Troops

by

Colonel-General of the Tank Troops P. Poluboyarov

The rapid development of nuclear/missile weapons and their broad introduction into the armed forces predetermined the necessity for a review of previously formed views on the nature, methods, and forms of conducting modern operations and on the role and significance in them of various means of armed combat and also of views on the means of further development of types of armed forces and arms of troops. However, in this natural process, sometimes, under the guise of being something new, positions are expressed which are poorly founded, or entirely unfounded and already repudiated by reality itself.

Recently in our periodical press and in certain speeches, the opinion has been expressed concerning the advisability of repudiating tank armies and the necessity for creating, in place of tank and motorized rifle large units, unified divisions capable of performing varied missions under the complex conditions of a nuclear/missile war.

Taken by itself, this viewpoint is not new. It was even put into practice in the structure of our ground troops and the armies of a number of capitalist countries. Thus, for example, in the French Army which, on the eve of the invasion of German-Fascist troops into France had a significant number of tanks, there was not a single tank division or tank corps. At the beginning of the war, there were only two mechanized divisions in France and a third was in the state of formation. A large portion of the tanks of the French Army were dispersed by small subunits

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in infantry units and designated for joint operations with the infantry. This could not help but have an effect on the combat effectiveness of the French Army and to a large degree facilitated its rapid destruction by the German-Fascist troops.

In the structure of our ground troops prior to the Second World War there was a similar repudiation of major large units of armored troops. An attempt was made to rectify this serious error but not in time, due to the commencement of war with Fascist Germany. Until the end of 1942 this error continued to have an effect on the operations of our troops, even though we strove to equip combined arms armies with as many tank regiments and brigades as possible. But such an action did not produce the needed effect, and during the course of the war we were forced to create tank corps and tank armies which did play an important role in the successful conduct of all the successive operations of the Second World War.

After the war mechanized armies were created instead of tank armies. Subsequently, it was necessary to abandon these and once more return to tank armies.

Thus, as was proved by our experience and numerous examples from the armies of other nations, measures for the unification of tank and rifle (motorized rifle) large units have thus far not justified themselves. Are there sufficient bases to affirm that under the system which has arisen, of arming ground troops, these measures will be correct? In our opinion such bases do not yet exist.

It is well known that the decisive role in attaining the aims of war and of individual operations belongs to nuclear/missile weapons. The efforts of ground troops are directed toward the most complete and effective exploitation of the results of the application of these weapons with the aim of final defeat of basic enemy groupings and the seizure of his vitally important centers and areas for basing weapons of armed combat, primarily nuclear/missile weapons. Ground troops complete the defeat of armed forces on ground fronts, seize and hold enemy territory and the most important installations.

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"One of the most basic missions of ground troops, one of primary concern to the command and staffs", indicated Minister of Defense Marshal of the Soviet Union R. Ya. Malinovskiy, "must be the skilful exploitation of the results of strikes by missile troops for the rapid advance of armies and fronts".

On the basis of the nature of modern operations, it is possible to say that in the composition of ground troops the most important role will be played by that arm of troops which by its combat characteristics is able, to the maximum degree, to exploit the results of the effects of nuclear weapons on the enemy, which loses its combat effectiveness to the least extent from nuclear strikes by the enemy, which can successfully conduct active, highly mobile combat operations at high tempos, rapidly overcome broad zones of radioactive contamination, and rout enemy groupings in meeting engagements and battles precipitately.

At the present time such an arm of troops is the tank troops. This is explained by the specific characteristics and combat capabilities of tanks. Tanks are more stable than other weapons under the effects of nuclear weapons against them, possess powerful armament, high mobility, and armor protection, and can operate immediately after nuclear strikes; at the same time their crews are quite dependably protected from the destructive factors of a nuclear burst. The high combat qualities of tanks allow tank troops to exploit effectively the results of nuclear strikes and conduct highly mobile combat operations, to deliver, in coordination with nuclear weapons and air drops, powerful and deep strikes on the enemy during an offensive, and to guarantee the activity and stability of troops in defense.

The high combat qualities of tank troops have predetermined the sharp proportional increase of them in the composition of ground troops and the significant equipping of combined arms large units and formations with tanks. The organizational inclusion of tanks in the composition of combined arms units, large units, and formations, as well as their full motorization, have significantly raised the maneuverability, striking force, stability of ground troops during enemy nuclear strikes, and their ability to conduct combat operations under conditions of the mass utilization of nuclear weapons.

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The equipping of ground troops with nuclear/missile weapons and the broad introduction of tanks and other armored equipment into their composition have had a decisive influence on raising the combat capabilities of combined arms large units and formations. A modern combined arms army is able not only to penetrate successfully the tactical defense of the enemy but also to direct its efforts rapidly to an operational depth and develop an offensive at high speeds.

Thus, the combat and maneuvering capabilities of combined arms large units and formations have increased significantly. However, is it possible, on the basis of this, to equate motorized rifle to tank divisions or combined arms armies to tank armies, to assert that the former can replace the latter, and on the basis of this to conclude that tank armies are not needed? In our opinion, this cannot be done because the large units and formations named differ from one another not only in quantity of tanks but also in basic combat characteristics and operational-tactical capabilities.

The modern tank army is an entirely new operational formation and by its combat qualities and capabilities is significantly superior not only to the tank army of the Second World War period but also to the postwar mechanized army. It also differs in many aspects from the modern combined arms army. Having in its composition four tank divisions, the tank army is a powerful striking and highly maneuverable tank formation, capable of exploiting the results of the mass use of nuclear/missile weapons in the best manner. The organizational structure and combat characteristics of tanks contain great capabilities for delivering rapid and powerful tank strikes to a great depth, for executing a rapid and broad maneuver on the battlefield, for preserving a significant degree of stability during enemy nuclear strikes and for surmounting wide zones of radioactive contamination with high levels of radiation. By its composition the tank army is homogeneous and much more mobile than the combined arms army.

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The combat capabilities of a tank army allow it to overcome the enemy defense after mass nuclear strikes more quickly than a combined arms army, to reach an operational expanse rapidly, and there to develop bold, decisive, and highly mobile combat operations, directed in conjunction with missile units, airborne landing forces, and aircraft toward the destruction of the enemy's deep reserves and the achievement of operational aims at the highest possible speeds.

The high maneuverability of large units of a tank army, their great antiatomic stability, and strike-penetration force allow the army to conduct combat operations successfully at a significant distance from the remaining forces of the front and to perform in conjunction with other forces and means the most important missions in the defeat of enemy troops. The role and significance of tank armies in modern operations was defined very exactly by the Minister of Defense, Marshal of the Soviet Union, R. Ya. Malinovskiy, who stated that tank armies were bundles of arrows released from a tightly bound bow string for the swift achievement of the final goals of an operation.

Certain comrades do not see the fundamental difference between tank and combined arms armies and propose doing away with tank armies. In our opinion, this proposal stems from an incorrect understanding of the significance of tank troops in general and tank armies specifically in a nuclear/missile war and from an underestimation of their combat capabilities.

Recognizing the important role of tank armies, we are in no measure trying to belittle the significance and combat capabilities of combined arms armies. Yielding to tank armies in antiatomic stability, mobility, and ability to conduct highly maneuverable combat operations, at the same time combined arms armies possess a number of advantages which allow them to perform many combat missions successfully. The same may be said of tank and motorized rifle divisions.

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We consider that under modern conditions the necessity for tank armies and tank divisions has in no way diminished in comparison with the Second World War but, on the contrary, it has increased. Speaking of the superfluousness of tank armies, some comrades refer to the complexity of committing them to battle, and the difficulty of securing their flanks and supplying them with various materiel. But these deductions, in our opinion, are not sufficiently confirmed. With the existence of massive, multi-million man armies, the huge spatial scope of a future war and the large variety of missions which ground troops will perform, tank troops and motorized infantry will, for the time being, remain independent arms of troops, and the negation of one or the other of them is premature. A repetition of mistakes committed in the past may now lead to even worse results. We hold the opinion that even with the presence among ground troops of nuclear/missile weapons permitting the destruction of enemy groupings of any composition, the necessity continues to exist for a strike force, for tank troops and their basic large units and formations which are tank divisions and tank armies, and their long-range development and improvement should be given due attention also in the future.

It would not be an exaggeration to say that the presence of tank troops which are more advanced in technical equipment, organizational structure, and methods of operations, also, to a significant degree, in turn stimulates the development of the infantry which must carry out highly maneuverable combat operations in conjunction with tanks. The attempt of certain comrades to reverse the direction of this process is in obvious contradiction with the real course of development of the means and methods of armed conflict, as well as with the position that preferential development must be given to the most modern arms of troops.

The currently accepted organizational structure of large units and formations of ground troops basically corresponds to the modern conditions of conducting combat operations. However, the constant development of weapons of armed combat and methods for their use governs the necessity for its further improvement.

The improvement of the organizational structure of tank and motorized rifle large units must proceed, in our opinion, along the line of an even greater decrease in personnel, unprotected by armor, increase in antiatomic stability and viability, strike-penetration force and maneuverability of large units, and also an increase in their ease of control and capability for conducting independent combat operations to a great depth and at high speeds.

In our opinion it is advisable to have tank divisions and tank armies of the same composition. A tank army could consist of 4 to 5 tank divisions, and a tank division of 4 tank regiments of medium tanks. In a tank army as well as in tank divisions it is necessary to have organic nuclear/missile weapons. Instead of a motorized rifle regiment in a tank division it is advisable to have a motorized rifle battalion in each of its tank regiments. It is more advisable to have heavy tank regiments and divisions under army or front subordination and to turn them over in case of necessity to large units and formations during the course of an operation.

Together with improving the organizational forms of troops, great significance is acquired by the question of the means of long-range development of tanks and other armored equipment.

In the armament of our ground troops there are T-55 medium tanks and T-10M heavy tanks which more than other combat vehicles guarantee protection of the crew from the influence of the destructive factors of a nuclear burst and are best suited for operations under conditions of the mass utilization of nuclear weapons, and by their basic combat characteristics are significantly superior to foreign tanks of corresponding types and years of manufacture. However, it would be a mistake to suppose that these tanks do not need improvement. New conditions of conducting combat operations make radical improvements in the combat qualities of tanks essential and force the working out of new directions in their development, because the possibilities of further improvement of tanks by old methods are, in practice, almost completely exhausted. In this connection, the question arises as to along which directions our tank construction must develop, and which types of tanks is it more advisable to have in the armament of ground troops?

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In recent years the question of the future of tanks has been broadly discussed in our military press, on the pages of which are expressed the most varied proposals and opinions, some of which even cast doubt generally on the possibility of successful tank operations on the field of combat with modern antitank weapons.

It is well known that the appearance of tanks brought forth the need for weapons to combat them. Such a weapon was first of all artillery: initially conventional, field; later antitank, special. All subsequent development of tanks was carried out in a competition between the protective characteristics of their armor and the destructive capabilities of armor-piercing shells. Toward the end of the last war it had already become evident that the superiority in this competition was with shells. By this time, capabilities for increasing the thickness of tank armor and its antishell stability had approached their limits, but the destructive capabilities of shells radically increased in connection with the use of high-explosive charges.

The increase in the proportion of tank troops and their role in performing combat missions under conditions of the utilization of nuclear weapons has given new impetus to searches for more effective antitank weapons. In recent years for arming the armies of NATO countries recoilless weapons and antitank guided missiles have been adopted, the destructive capabilities of which almost doubly exceed the protective characteristics of tank armor. Work to improve these weapons continues. At the same time attempts to create a qualitatively new armor have not as yet reached any appreciable results in practice.

Thus, at the present time, as in the period of the Second World War, a significant gap exists between the protective capabilities of tank armor and the destructive capabilities of antitank weapons. Basing their reasoning on this fact, a number of foreign authors arrive at the conclusion that tanks are weapons of the past and not of a modern war, and they propose doing away with the heavy armor of tanks because the armor is pierced by antitank

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weapons anyway, and changing to lightly armored, but more mobile and maneuverable, vehicles. This viewpoint finds support among a certain segment of our generals and officers, who propose the creation of a light tank and having it in the armament of ground troops as the basic and only combat vehicle. We cannot agree with this for a number of reasons.

In the first place, a change to tanks with light armor increases the possibility of their destruction not only by antitank but also by other weapons.

Secondly, the chief weapon of destruction under modern conditions is not antitank, but nuclear weapons, and for this reason it is first of all necessary to proceed from a consideration of the impact of the latter. During the conduct of highly maneuverable combat operations under conditions of the broad use of nuclear weapons, the most effective means, capable of protecting a person from the effects of the destructive factors of a nuclear burst, is still the armor of tanks. If it is weakened, tanks lose one of their most important qualities.

Thirdly, with a change to light, thinly armored vehicles, the qualitative superiority in tanks will immediately shift to the side of our probable enemies, in whose armies medium tanks continue to be basic.

Fourthly, data concerning the destructive capabilities of modern antitank weapons reflect at present only the results of firing range trials in the absence of the effects of firing against these weapons, and consequently, without considering the difference between firing conditions on the firing range and in combat. Under equal conditions of the effects of nuclear weapons and other means of destruction on tanks and on antitank weapons, tanks will be in a more favorable situation and will be able to carry out combat operations successfully, even with the existence of effective antitank weapons.

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Based on the nature of modern operations and the conditions of tank construction in our country and in the major capitalist countries, we consider that until new models are developed for the armament of our army, three types of tanks must remain: heavy, medium, and special amphibious. When tanks with higher performance criteria are created, it is possible that we will do away with heavy tanks and have in our armament, in addition to light tanks, one basic type of tank, but with various armament systems. It seems to us that it does make sense to create light tanks for airborne troops and reconnaissance units and subunits.

In our opinion, tanks of the future must, as in the past, combine in themselves firepower, high mobility, and armor protection and must guarantee maximum possible protection to crews from the destructive factors of a nuclear burst. The preferential development of one or another quality at the expense of other characteristics of tanks might lead to the drastic decrease of their overall combat effectiveness. In connection with this the basic guides in the work of building new tanks must be:

-a further significant increase of the firepower of tanks by improving the quality of rifled and smoothbore guns, and subsequently by installation in tanks of more modern guided missile armament, providing the capability to destroy enemy tanks with certainty at such ranges and with such accuracy as to exceed the capabilities of enemy tanks;

-a sharp improvement in the protection of crews from penetrating radiation as well as improvement in the protection of tanks from high-explosive charges;

-a further decrease in the weight of tanks by new arrangements of parts, the use of light alloys, plastics and other new materials;

-an increase in the maneuverability of tanks and raising their maximum speeds to 60 to 70 km per hour and average speeds to 40 to 45 km per hour;

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-a significant increase in the cruising range of tanks, an increase in the dependability of their operation, and a decrease in the amount of servicing during the course of combat operations;

-a decrease in tank crews to 2 or 3 persons as a result of complete automation of the combat operations and servicing of tanks;

-the equipping of tanks with more modern instruments for firing, sighting and navigational apparatus guaranteeing the conduct of combat operations at night as well as during the day;

-the maximum standardization of units and assemblies for tanks;

-the creation of an improved system of driving tanks under water;

-the creation of conditions for transport of tanks by air.

All these measures must guarantee in the future the superiority of our tanks over tanks of the armies of capitalist countries. Tank troops equipped with new tanks will be able even more successfully to carry out combat operations under conditions of the mass use of nuclear weapons.

The interests of increasing the mobility of ground troops also govern the necessity to seek means for increasing the combat and maneuvering capabilities of infantry.

Our infantry in actuality is not only unprotected from the destructive factors of nuclear bursts but also from modern small arms. Its mobility and maneuverability on the field of combat is also very low in comparison with tanks. Tank units and subunits are capable of attacking the enemy at combat speeds equal to 12 to 15 km per hour, and of developing an offensive at a speed of 20 to 25 km per hour and more. On the other hand, the speed of movement

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of dismounted infantry on the field of combat is limited by the capabilities of the human organism and does not exceed 3 to 4 km per hour. The armored carriers existing in the armament of ground troops do not fully guarantee protection of the infantry and its necessary maneuverability on the field of combat.

Thus, the infantry at present is the most vulnerable and least mobile element of the combat structure of the attacking echelon of ground troops. The great difference in the combat capabilities of tanks and infantry hampers the effective exploitation of the results of using nuclear weapons and conducting offensives at high speeds.

With the aim of raising the combat and maneuvering capabilities of the infantry it is advisable, in our opinion, to create as inexpensively as possible a special mass combat vehicle for the infantry, which would permit it to follow the tanks without lagging and to wage combat jointly with them from these vehicles, dismounting only in the most exceptional instances.

We cannot agree with the opinion of certain comrades who propose, with the aim of raising the combat capabilities of the motorized rifle division, increasing the number of tanks in its composition to 300. It is completely obvious that in this case the division will not be a motorized rifle but a tank division. In our opinion, there is no necessity for such an increase in the number of tanks in a motorized rifle division. A more important problem at the moment is the matter of raising the combat capabilities of the infantry. One of the possible ways of solving this problem is the creation of an infantry combat vehicle.

An infantry combat vehicle must be, in our opinion, fully armored, tracked or half-tracked, capable of overcoming obstructions on the field of combat and difficult sectors of terrain on a par with tanks, amphibious, transportable by air, with high viability and antiatomic protection for the crew and troops transported (desant). The maximum speed of the vehicle may be: on wheels - up to 70 to 80 km per hour, on tracks - up to 40 to 50 km per hour.

The vehicle must have powerful, but compact and light-weight missile weapons, permitting the conduct of effective combat not only against personnel and various fire weapons but also against armored enemy targets.

The crew of the vehicle may consist of two persons. The passenger complement is a rifle squad. The construction of the vehicle must permit the transported troops to conduct combat without dismounting, as well as provide for the convenient accommodation, boarding, and debarkation of the transported troops under various conditions of the combat situation. The weight of the vehicle must be as little as possible.

With the adoption of such a combat vehicle, the necessity might arise for certain changes in the organizational TO&E structure of tank and motorized infantry large units and units. We are not examining this matter in this article, considering that it can be decided only after the vehicle is created. At present we should only like to indicate very briefly what such a combat vehicle might do for ground troops.

An infantry combat vehicle will provide first of all the possibility for significantly increasing the mobility and maneuverability of motorized rifle units and subunits, which then will be capable of successfully advancing behind tanks under the most complex conditions of combat situations and terrain. Operating from these vehicles, the infantry will not lag behind tanks and always will be able to perform various combat missions together with them.

The high cross-country ability and complete armor of the combat vehicles will permit the infantry to carry out broad maneuver on the field of battle and conduct combat operations under complex and rapidly changing situational conditions both together with tanks and independently.

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In equipping the infantry with the new combat vehicle, the viability and stability of motorized rifle units and subunits during enemy nuclear attacks and their capability to exploit the results of our nuclear strikes and cross zones of radioactive contamination will be raised.

The presence on the combat vehicle of machine guns and missile mounts capable of engaging in combat with armored and openly positioned enemy targets will sharply raise the firepower of the infantry. Conducting combat operations on these vehicles, the infantry will be able to combat successfully the enemy's fire weapons and personnel and offer more effective support to tanks on the field of combat.

All the properties which the infantry will acquire with the adoption of the combat vehicle will lead not only to raising the combat capabilities of motorized rifle units and subunits but also to increasing the mobility of tank and motorized rifle large units as a whole. Thanks to this, the combat qualities of tank and motorized rifle divisions will correspond more closely to the requirements of a nuclear/missile war.

The high mobility, great strike force, and armor protection of all personnel of the combat subunits of tank and motorized rifle divisions will favor more effective exploitation of the results of the use of nuclear weapons and the delivery of even deeper and more rapid strikes against the enemy. The capabilities of troops for carrying out broad and rapid maneuver from the zone of interior as well as directly on the immediate field of combat will increase significantly.

The presence in the composition of tank and motorized rifle divisions of easily controlled tank and motorized rifle units with equal mobility and maneuverability will provide the capability for rapidly creating such combat formations for combat as to satisfy the various conditions and requirements of a sharply changing situation. These qualities of tank and motorized rifle units will permit,

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in addition, the avoidance of a prior dangerous concentration of considerable forces and weapons in a limited area on the axis of a major strike and will more fully instill into the practice of combat operations the principle of dispersal of troops and their operations along separate axes. This principle corresponds to the nature of modern operations to the greatest degree.

The advance of large units and units in dispersed formations on a broad front and along axes undoubtedly will decrease troop losses from enemy nuclear strikes, will make it more difficult for him to utilize weapons of mass destruction, and at the same time will permit our troops to carry out a broader and more flexible maneuver of forces and weapons with the aim of reaching the enemy's deep rear area and destroying his troops by units in short periods of time.

In conducting combat operations in dispersed formations and along separate axes, tank and motorized rifle large units will accomplish the destruction of the enemy usually in mobile forms of combat in conjunction with missile units, airborne forces, and aviation. The necessity for a methodical breakthrough of the enemy's defenses no longer arises. The latter will be overcome after nuclear strikes along axes, providing rapid penetration to an operational depth and development of an offensive at maximum possible speed. At the same time, the advance of infantry on combat vehicles following nuclear strikes also must become a regular occurrence in overcoming the defense. Only under this condition can the speed of an offensive be sharply increased and the results of nuclear strikes against the enemy be exploited to the maximum.

In overcoming the defense, the motorized rifle subunits and units will be able to attack the enemy from the march, not dismounting at a line of deployment as has been done up to now. Moving out from the zone of interior after tank subunits, as they approach the main line of resistance, they will carry out necessary reformations while on the march and in conjunction with tanks will overcome the enemy's defense on vehicles in combat or approach march

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formations. Operating on combat vehicles, motorized rifle units and subunits will be able to maneuver more on the field of combat, more quickly change the structure of combat formations and change if necessary from combat formations to approach march formations or the reverse.

Of course, under varied situational conditions the possibility of the infantry operating in dismounted combat formations is also not excluded when the joint operations of tanks and infantry on combat vehicles are for some reason impeded. However, even in these instances the infantry will be in more favorable circumstances than now. After the infantry has dismounted, the combat vehicles will not be removed to cover, as is done with armored carriers, but will support the combat of the infantry with their fire, advancing after the combat formations of their subunits. During this, the combat vehicles will be kept in constant readiness to load the infantry and provide it with a rapid means of advancing after the tanks.

The fullest high maneuvering capabilities of tanks and motorized rifle large units will come about after overcoming the enemy's defenses. Tank units and large units, in reaching an operational expanse, will break through more boldly and deeply into the depth of the enemy's defenses, knowing that the infantry on combat vehicles will not lag behind them and when needed can unite their efforts with them for delivering coordinated and sudden strikes against the enemy. All this will increase even more the capabilities of tank large units in conducting independent highly maneuverable combat operations at speeds of 100 or more kilometers in a 24-hour period.

Equipping the infantry with the combat vehicle creates new conditions, differing in principle from the past, for troop forcing of water barriers.

First of all, after the infantry combat vehicle has become part of our armament, the requirements of troops for various landing and ferrying means is decreased considerably and operations of the infantry in the forcing of water barriers will no longer depend on troops' having these means.

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Motorized rifle units and subunits, operating on combat vehicles, will be able to force water barriers while on the march, in the literal sense of the word. Possessing high cross-country and amphibious qualities, the combat vehicles will ensure that troops reach a water barrier rapidly on a broad front, and ensure their rapid deployment and quick forcing of the barrier in combat or approach march formations. Thus, in the majority of cases, motorized rifle subunits and units will be able to surmount water barriers from the march simultaneously with amphibious tanks along the entire forcing sector without carrying out preparatory engineering work for preparing crossings (except for mine clearing).

Having infantry combat vehicles will increase the possibilities for carrying out maneuver with forces and weapons while forcing water barriers and for transferring the efforts of advancing troops from one direction to another. The execution of a subsequent forcing of water barriers from the march will likewise be made significantly easier. Not being tied down by crossing equipment, motorized rifle units and subunits together with amphibious tanks as well as tanks equipped for movement under water, after forcing one water barrier will race toward the next water barrier and force it from the march.

The equipping of motorized rifle units and subunits with an infantry combat vehicle will have a great influence on the nature of troop operations under conditions of strong radioactive contamination of the terrain. Possessing high mobility, motorized rifle units and subunits on combat vehicles will be able not only to rapidly bypass zones of contamination, but also to cross them successfully in directions with the lowest level of radiation. The combat vehicles will provide in this a higher degree of protection for personnel from penetrating radiation and radioactive dust than armored carriers, much less motor vehicles.

Under modern conditions, together with the maneuvering of troops on the ground, great significance is acquired by troop maneuver in the air. On the basis of this, troops, together with their weapons and combat equipment, must be capable of being transported by air.

The mass movement of troops by air, as is well known, is impeded because of the absence of light transportable combat equipment and means with a larger load-capacity for transporting airborne forces. With the creation of a relatively lightweight infantry combat vehicle, an important step toward solving this important problem will have been made. The transportability of the infantry combat vehicle by air will permit the transfer by air of motorized rifle units and large units in future operations in mass formation over considerable distances and in short periods of time.

Naturally, in the future the question will arise of whether all motorized rifle units of tank and motorized rifle divisions should be equipped with the infantry combat vehicle. The solution of this question is directly dependent on the designated operational missions of the large units and the economic capabilities of the country. It seems to us that first of all it would be advisable to equip with these vehicles those motorized rifle units which make up the complement of tank armies and tank divisions of combined arms armies. Subsequently, other large units located in the most important theaters of military operations could be so equipped.

It should be noted that in equipping the infantry with the combat vehicle, the question of raising the mobility of tank and motorized rifle divisions is still not completely solved because there will remain in their composition a relatively large number of subunits and units of other arms of troops which are not protected by armor and have less maneuverability.

Under modern conditions, in the composition of all tank divisions including those in tank armies, it would be advisable to have not trailer but self-propelled mounts, mainly with atomic armament, which are capable of more effectively executing various fire missions during the conduct by tank troops of highly maneuverable fast moving combat operations.

Subunits and units of special arms of troops which are included in the composition of tank and motorized rifle large units and conduct combat as an attacking echelon must

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also possess increased mobility and greater protection from the destructive factors of nuclear weapons. This brings out the necessity of also developing appropriate means of armament and movement for them.

In the near future, apparently, vehicles can be created for ground troops utilizing for movement the so-called principle of the "air cushion". The adoption of such vehicles will permit a sharper increase in the mobility of infantry and their maneuverability to a level corresponding to modern requirements. The cross-country ability of such vehicles will provide troops with the capability to execute rapid maneuver, to cover large expanses, including significant zones of radioactive contamination and wide water barriers in short periods of time, and to deliver sudden strikes against the enemy from the flanks and rear.

Units and subunits equipped with these vehicles will find the most widespread use as reconnaissance units and forward detachments of attacking troops. By exploiting breaks and unoccupied sectors in the enemy's defense, they will be able to reach the deep rear of the enemy very quickly and execute not only missions assigned to forward detachments but also a portion of the missions which are carried out by tactical airborne landing forces.

For ground troops it is advisable, in our opinion, to build vehicles which would have an average speed of 100 to 120 km per hour and a cruising range of 400 to 500 km, with not less than 30 to 40 per cent of this by air.

The question arises as to whether or not the increase in the combat capabilities of the infantry will reach the point where it will be capable of performing all combat missions with the same success as tanks. It seems to us that this will not occur for this reason. No matter how good the infantry combat vehicles will be, on the basis of its characteristics it will be far from comparable to our basic tank. And because this is so, tank large units and units under other equal conditions will potentially have greater combat capabilities at their disposal than motorized rifle large units and units on these vehicles.

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The basic advantages of tanks over other combat vehicles will remain: the best protection of the crew from nuclear destruction, more powerful armament, and greater penetrating strike force. The influence of the first factor indicates that under conditions of equal effects by any of the enemy's weapons of destruction losses in tanks will be less than losses in other combat vehicles. Thus, tank troops will better retain a capability for executing combat missions. During operations along separate axes or isolated from the main forces, this will have a decisive significance. More powerful armament will permit the infliction of great losses on the enemy and facilitate the possibility for completing his destruction by a powerful strike by the tanks themselves. All these advantages taken together will provide tank troops with the opportunity to advance at a higher speed and to a great depth. It should also be kept in mind that the development of tanks, even though it encounters certain difficulties, proceeds relatively rapidly in our country. By the time the infantry receives the combat vehicle in its armament, tank troops can receive a new and even more improved and powerful tank.

It should be noted that the development of the infantry in the postwar period proceeded along lines of increasing its strike force and maneuverability, i.e., properties more characteristic of tank troops.

Our present motorized rifle divisions and combined arms armies, on the basis of these characteristics (without taking nuclear/missile weapons into consideration), approach the level of the large units and formations of armored and mechanized troops of the Second World War. Tank troops also have advanced a great deal during this period in technical equipment and organizational forms and have become different. They are constantly reinforced with new models of combat equipment and armament, have a more improved organization, and are capable of carrying out highly maneuverable combat operations at a speed of up to 100 and more kilometers per 24-hour period at a significant distance from the basic forces of a front (army). However, these high combat qualities of tank troops have not yet been

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fully realized during several training exercises, sometimes efforts are in evidence to utilize tank divisions and tank armies on a par with motorized rifle divisions and combined arms armies, and often they are drawn into long and fruitless combat instead of being utilized for carrying out active and rapid offensive operations to a great depth. For this reason, together with the further improvement of combat equipment, armament, and the organizational structure of troops, it is essential to search for and master in practice such methods of their use as to fully correspond to the changing conditions of conducting combat operations and to permit the maximum exploitation of the results of nuclear strikes against the enemy.

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